EE 506 PMP Fundamentals of Wireless Communications (Spring 2016)

Dated March 1, 2016

Professor: JA Ritcey, EE454, Phone: 206-543-4702, Email:jar7@uw.edu

Prof Office Hours: before and after class or other days by appointment

TA Office Hours: One weekend Day time by mutual agreement or by appointment. The standard plan of an extended TA section will be followed.

Textbook: A. Goldsmith, "Wireless Communications", Cambridge University, 2005. notes will be provided and readings assigned.

Prerequisites:

An undergrad understanding of signals and systems in discrete and continuous time.

Knowledge of probability (EE 505 or equivalent is very helpful. EE 518 is useful, but not required) Some facility and interest in MATLAB or equivalent

Prior course on Digital Communications or electromagnetics is not required.

Course Syllabus: (approximate times are based on 3 hrs/week of lecture) Chapters are from the Goldsmith textbook. Notes will be posted on the course website.

Topics

 \cdot Modern Communications Overview

·Signals and Systems in Communications, using MATLAB.

·Digital Communications - coherent and noncoherent. This includes PAM, QAM, MPSK, and MFSK.

-The objective is to show the role of the constellation, receiver structures, and performance over additive noise channels.

·Midterm Exam, in-class midterm

•Fundamentals of Information Theory and Channel Coding. These are critical in modern systems designs..

•The Wireless Channel - Fading and Multipath. Every channel is unique!

 \cdot Multi-Antenna Systems - Beamforming and MIMO. Now an integral part of design.

 \cdot New directions and hot topics in wireless": 5G, IoT, femtocells, among others

·Final Exam, during Finals week

Grade Policy: 6 Homework assignments 35%, Midterm 25%, Final 40%.

TA: Michael Carosino, Email:, Office hour: TBD

Homework (HW): HW is typically assigned in-class weekly and will be due in 1 week from the day assigned, at the start of class. Delayed HW submissions may be allowed only with prior consent of the instructor, and submitted before HW solutions are posted. Some HW problems require MATLAB. Get familiar with it.

Exams: Midterm exam is around the 5th or 6th week of the quarter. It will be in-class. Final exam is scheduled on the final's week of the quarter. It may be a take-home

Class homepage: Please link from the EE Class homepages